RESPONSE TO PUBLIC COMMENTS

From July 14, 2008 to August 12, 2008, the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) solicited public comments on a draft National Pollutant Discharge Elimination System (NPDES) Permit, developed pursuant to an application submitted by the Town of Lee, Massachusetts for reissuance of its permit to discharge treated wastewater to the designated receiving water, the Housatonic River.

Following a review of the comments received, EPA has made a final decision to issue the permit authorizing this discharge. In accordance with the provisions of 40 CFR § 124.17, this document briefly describes and responds to the comments received on the draft permit, and describes any provisions of the draft permit which have been changed as well as the reasoning supporting those changes. Any clarifications that EPA considers necessary are also included in this document. A copy of the final permit may be obtained by calling or writing Meridith Timony, United States Environmental Protection Agency, One Congress Street, Suite 1100 (CMP), Boston, Massachusetts 02114-2023; Telephone: (617) 918-1533. Copies of the final permit and the response to comments may also be obtained from the EPA Region I website at http://www.epa.gov/region1/npdes/index.html.

(Note: the numbering used below does not reflect any particular numbering in the commenters' letters, but rather incorporates the comments into the numbering system used in the overall response to comments in such a way that each issue raised within the comments is addressed in a more effective manner)

A. Comments prepared and submitted prior to the public comment period by Kevin Anderson, P.E., Project Manager, Metcalf & Eddy, and Bob Scherpf, P.E., Vice President, Metcalf & Eddy, Inc, for the Town of Lee, dated June 13, 2008. Comments re-submitted by Robert Nason, Town Administrator, Town of Lee, dated July 31, 2008.

Opening Comment from Town of Lee

Per our telephone conversation this date we are enclosing another copy of our consultant's, Metcalf & Eddy/Bob Scherpf's, June 13, 2008 letter regarding our concerns over some provisions of the draft permit.

We had hoped and expected that the final draft permit would have responded to our concerns that Bob presented; and, we are resubmitting his June 13, 2008 letter to insure that are concerns are considered before the permit is issued.

Response to Opening Comment from Town of Lee

EPA's response to the comments and concerns presented in Metcalf & Eddy's letter, dated June 13, 2008, can be found in the proceeding paragraphs.

Opening Comment from Metcalf & Eddy, Inc., in correspondence submitted to MassDEP and EPA, dated June 13, 2008

We are writing at the request of the Town of Lee pursuant to your March 31, 2008 transmittal of the draft Permit No. MA0100153, our meeting at the WWTF site with Town officials (Robert Nason, Chris Pompi, and Al Zerbato) and the DEP (Paul Hogan and Paul Nietupski) on April 9, 2008, and subsequent discussions with Mr. Hogan. The Town has a number of concerns over some of the provisions of the draft permit; the purpose of this letter is to raise those concerns and to highlight supporting arguments and rationale for proposing alternative provisions. The concerns that were discussed at our meeting can topically be identified as follows:

- *Changes to the Total Phosphorus Effluent Limit*
- *Dissolved Oxygen Effluent Limit*
- *Redundancy in Effluent Disinfection Parameters (E. coli, Fecal Coliform)*
- *Local Political Climate – Issues of Fairness*

A discussion of each of these issues is presented herein along with a concluding recommendation.

Background

The new WWTF is the product of a lengthy planning, design, and construction process that commenced with an Administrative Consent Order issued in August, 1998 and a Project Evaluation Report prepared by another consultant in 2001.

The current activity began after the failure of a design/build project delivery approach that collapsed due to insufficient local support in the fall of 2004. At that time it was determined that a conventional design/bid/build project delivery method would be most suitable to the Town's needs. After procurement of M&E as consultant in late 2004/early 2005, work progressed rapidly through completion of design in January 2006. Following advertisement and bidding, the construction Contract was awarded and Notice to Proceed was issued on June 27, 2006. Construction is at completion with 2.55% change orders and zero claims by the Contractor and the Town.

Response to Opening Comment from Metcalf & Eddy, Inc., in correspondence initially submitted to EPA and MassDEP, dated June 13, 2008

Please see EPA's responses to the individual arguments and concerns contained in the June 13, 2008 letter below.

Comment A.1.

Changes to the Total Phosphorus Effluent Limit

As part of M&E's scope of services in the project development phase, a facilities plan update (Supplemental Project Evaluation Form (PEF) was prepared and issued by M&E. Below is a timeline of some of the key communications with and submittals to MADEP that relate to effluent permit limits:

- *Guidance from MADEP to M&E – February 2005 (e.g., e-mail from M. Schleeweiss to B. Daly... "build something that reasonably stands a chance to meet NPDES limits for the foreseeable future…plan on Phosphorus limit of 0.2 mg/L"…)*

- *Letter from M&E to MA DEP – Projected Wastewater Flows and Effluent Discharge Limits – April 4, 2005(**including justification for a future TP limit of 0.8 mg/L).***

- *NPDES Permit Application – August/September 2005*

- *Application for Financial Assistance – October 14, 2005*

- *Letter from EPA dated November 4, 2005*

- *Final Supplemental Project Evaluation Report (PER) – October 28, 2005 (attach to RTC)*

- *Request for Authorization to Award (Part B) – May 26, 2006*

- *Draft WWTF O&M Manual – May 16, 2007*

- *Final Draft WWTF O&M Manual – November 16, 2007*

It should be noted that this is not an all-inclusive list. The April 4, 2005 letter from M&E to MADEP became the basis for the finalization of the Supplemental PER and the detailed design work that followed. From this interaction with MADEP we maintain that all parties involved understood that the basis of design of the new WWTF would consider the following:

- *At the first renewal of the Permit, the TP limit would be 0.8 mg/L (seasonal – May 1 – October 31)*
- *MADEP advised the Town to plan for the possibility of a future TP limit of 0.2 mg/L – "Future" understood to mean no earlier than the second or third Permit renewal cycle after construction of the new WWTF*
- *Continue with reporting for "N"*
- *No DO limit (as there was no mention of any pending DO limit in any correspondence from MADEP)*

This understanding is evident by the content of the various submittals to MADEP that were the basis of design and development of the O&M Manual. To address a "future" TP limit as low as 0.2 mg/L, certain provisions were included in the WWTF design; these are:

- *Space allocated in the Headworks building for a future polymer storage/blend/feed system.*

- *An in-line static mixer (and associated additional polymer dosing point) located in the main process line between the post equalization tank and the effluent disk filters.*

Any other required provisions would need to be reviewed in the context of the operating WWTF – e.g. considering operating history with the new SBR process.

Our concerns with process issues/implementation of a lower TP limit in the near-term include:

- *Impact on chemical consumption – Alum: perhaps 70% more Alum required.*
- *Impact on chemical consumption – Polymer: new equipment required, added O&M costs (polymer, power, maintenance).*

- *Impact on sludge production: much higher Alum sludge production; perhaps 10% overall increase in sludge production.*

- *Insufficient operating history with the new WWTF to properly optimize the design of the additional process equipment.*

<u>Recommended Action:</u> It is recommended that the EPA/DEP relieve the Town of the strict numerical limit of 0.2 mg/L in the near term and revert back to our previous understanding that lower TP effluent limits would be implemented over time in successive Permit renewal periods. Attached is a series of calculations in spreadsheet format that show two such scenarios for your consideration.

Response A.1

The following documents, referenced in the above comment and submitted to EPA by Metcalf & Eddy, are appended to this response to comments document:

- **Appendix A**: **Projected Wastewater Flows and Effluent Discharge Limits Letter from Metcalf & Eddy, Inc. to MassDEP, dated April 4, 2005**

- **Appendix B**: **Total Phosphorus Limit Scenario Calculations**

Background for the Establishment of WQBELs

EPA is required to include effluent limitations in discharge permits for any pollutant or pollutant parameter which EPA has determined "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality" (40 CFR §

122.44(d)(1)(i)). The procedures followed by EPA when evaluating the potential for a discharge to cause or contribute to an excursion above a water quality criterion are specified in the federal regulations found at 40 § CFR 122.44(d)(1)(ii). If EPA concludes, after using the procedures found at 40 CFR § 122.44(d)(1)(ii.), toxicity testing data, or other available information, that a discharge causes or has the reasonable potential to cause or contributes to an in-stream excursion above a narrative criterion within an applicable State water quality standard, effluent limitations must be included in NPDES discharge permits in order to ensure that water quality standards in the receiving water are met (40 CFR § 122.44(d)(1)(v)).

The relevant Massachusetts water quality standards pertaining to nutrients (and the negative effects resulting from excessive inputs of nutrient) include the following minimum water quality criteria that apply to all surface waters: (a) aesthetics – "free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste, or turbidity; or produce undesirable or nuisance species of aquatic life"; (b) bottom pollutants and alterations – "free from pollutants in concentrations or combinations or from alterations that adversely affect the physical or chemical nature of the bottom, interfere with the propagation of fish or shellfish, or adversely affect populations of non-mobile or sessile benthic organisms"; and (c) nutrients – "unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs" (see 314 CMR §4.05(5)(a),(b) and (c)). As described in the fact sheet, the Housatonic River has been designated as a Class B water by the State of Massachusetts, and as such, is designated as a habitat for fish, other aquatic life, and wildlife, and for primary (i.e., swimming) and secondary (i.e., boating) contact recreation (see 314 CMR § 4.06 (Table 12) and § 4.05(3)(b)).

In the absence of a numeric criterion for phosphorus, EPA relies on the provisions found at 40 CFR § 122.44(d)(1)(vi)(A), nationally-recommended criteria, technical guidance and other information published under Section 304(a) of the CWA, as well as site-specific surveys and data and peer-reviewed scientific literature when interpreting and applying a narrative criterion and in the development of effluent limits that will achieve water quality standards in the receiving water (also see 40 CFR § 122.44(d)(1)(vi)(B)).

EPA's decision to include a seasonal 0.2 mg/l phosphorus limit in the draft permit was based on an evaluation of the 1.0 mg/l phosphorus limit in the permit which was issued in 2000 as well as information about the water quality of the Housatonic River. These evaluations are explained in further detail below.

Development of Phosphorus Limits Proposed in the Draft Permit

1. **Evaluation of the Effectiveness of the 1.0 mg/l total phosphorus limit and reasonable potential analysis**

As described in the fact sheet, the 1.0 mg/l phosphorus limit in the permit that was issued in 2000 was determined to be inadequate to ensure that the discharge would not cause a violation of water quality standards in the receiving water**.** This determination was based on a projection of the instream phosphorus concentration resulting from the discharge of phosphorus in quantities equal to the 1.0 mg/l limit using the following equation:

$$Q_rC_r = Q_dC_d + Q_sC_s$$

Where:

Q_r = Receiving water flow downstream of the discharge ($Q_d + Q_s$)
C_r= Concentration of phosphorus in the receiving water downstream of the discharge
Q_d = Design flow of the facility
C_d = Concentration of phosphorus in the discharge
Q_s= Receiving water flow upstream of the discharge
C_s = Concentration of phosphorus in the receiving water upstream of the discharge

The effectiveness of the 1.0 mg/l phosphorus limit in assuring that water quality criteria are not exceeded in the receiving water as a result of the discharge was evaluated by estimating the instream phosphorus concentration downstream from the discharge under critical flow (7Q10) conditions using a background phosphorus concentration (C_s) of 0.12 mg/l (as explained in the fact sheet, this value is the average of the results of analyses conducted on samples collected upstream from the discharge by MassDEP in 2002 and presented in the Housatonic River Watershed 2002 Water Quality Assessment Report (MassDEP 2007)), the lowest concentration of phosphorus permitted to be discharged under the permit that was issued in 2000 (C_d = 1.0 mg/l), the 7Q10 flow of the receiving water (Q_s = 40.3 cfs), the design flow of the facility (Q_d = 1.5 MGD = 2.325 cfs), and the flow of the receiving water downstream of the discharge ($Q_r = Q_d + Q_s$ = 42.6 cfs) as follows:

$$C_r = Q_sC_s + Q_dC_d / Q_r$$

$$C_r = [(40.3 \text{ cfs})(0.12 \text{ mg/l}) + (2.325 \text{ cfs})(1.0 \text{ mg/l})] / 42.6 \text{ cfs} = 0.17 \text{ mg/l}$$

This calculation, which accounts for ambient conditions, demonstrates that under critical flow conditions, the 1.0 mg/l phosphorus limitation in the permit that was issued in 2000 does not ensure adequate protection of the quality of the downstream receiving water and suggests that discharges of phosphorus equal to 1.0 mg/l will result in downstream concentrations that greatly exceed both the ecoregional and Gold Book criteria of 0.024 µg/l and 0.1 mg/l, respectively.

In addition to assessing the effectiveness of the 1.0 mg/l phosphorus limit, the instream concentration of phosphorus resulting from the discharge was estimated by projecting the instream phosphorus concentration in the receiving water downstream from the discharge

under critical stream (7Q10) conditions using effluent data collected from 2005 - 2007, and then comparing that value to the recommended criteria.

By accounting for a background phosphorus concentration (C_s) of 0.12 mg/l (again, this value is the average of the results from analyses conducted on samples collected in 2002 by MassDEP) in addition to the maximum monthly average concentration of phosphorus discharged from the facility from 2005 – 2007 during the months in which the 1.0 mg/l phosphorus limit applied (May 1 – August 30th) (C_d = 0.96 mg/l), the 7Q10 flow of the receiving water (Q_s = 40.3 cfs), the design flow of the facility (Q_d = 1.5 MGD = 2.325 cfs), and the receiving water flow downstream of the discharge (Q_r = 42.6 cfs), the resulting downstream phosphorus concentration was estimated to be 0.17 mg/l , which is greater than the Gold book criteria (0.1 mg/l) and the ecoregional criteria (0.024 µg/l) as shown in the equation below.

$$C_r = Q_sC_s + Q_dC_d / Q_r$$

$$C_r = (40.3 \text{ cfs})(0.12 \text{ mg/l}) + (2.325 \text{ cfs})(0.96 \text{ mg/l}) / 42.6 \text{ cfs} = 0.17 \text{ mg/l}$$

In addition to demonstrating the inadequacy of the 1.0 mg/l limit in ensuring that water quality standards will be met in the receiving water, the results of the above analyses also indicate that the discharge is likely causing or contributing to excursions above water quality criteria in the receiving water.

2. Justification for the 0.2 mg/l Limit Proposed in the Draft Permit

In addition to evaluating the effectiveness of the phosphorus limit contained in the permit that was issued in 2000, reasonably available sources of information pertaining to the discharge and the receiving water were evaluated to develop an appropriate limit that would result in the downstream receiving water meeting the recommended criteria of 0.1 mg/l (Water Quality Criteria for Water, USEPA 1986), in accordance with the requirements of 40 CFR§ 122.44(d)(1) (vi)(B).

Water quality problems in the Housatonic River due to excess phosphorus inputs and the resultant eutrophication were acknowledged in the Housatonic River Basin 1997/1998 Water Quality Assessment Report (MassDEP 2000). However, the issue was overshadowed by the extensive PCB contamination plaguing the river (Housatonic River Basin 1997/1998 Water Quality Assessment Report, pg. 10 (Mass DEP 2000)). The negative effects of cultural eutrophication resulting from excess phosphorus loadings in the receiving water and its impoundments are well documented and directly addressed in the Housatonic River Watershed 2002 Water Quality Assessment Report (MassDEP 2007). Moderate to dense algal growth and the presence of a strong septic odor are amongst the observations made and documented in this report for the segment of the receiving water in which the Lee WWTF discharge is located (segment MA 21-19). Water quality data presented in this report provide further support to the conclusion that the river is already experiencing the negative effects of nutrient enrichment, and municipal point sources are amongst the factors suspected of contributing to the eutrophic conditions in the river, particularly in the upper 9.2 miles of segment MA 21-19. The results of chemical analyses

conducted on samples of the Housatonic River collected during several sampling events in 2002 by MassDEP indicate that samples collected at a water quality sampling station located upstream from the Lee WWTF in Lenox, and another located approximately 300 feet downstream from the discharge in Lee, contained the highest concentrations of total phosphorus on several occasions (Housatonic River Watershed 2002 Water Quality Assessment Report, Appendix B (MassDEP 2007). The data presented in this report indicate that nationally-recommended instream phosphorus criteria are being exceeded even before the river receives additional loadings of phosphorus from the Lee WWTF's discharge (Housatonic River Watershed 2002 Water Quality Assessment Report, Appendix B (MassDEP 2007)). Further, the results of biological and habitat analyses presented in this report are indicative of nutrient enrichment both upstream and downstream from the Lee WWTF (Housatonic River Watershed 2002 Water Quality Assessment Report, Appendix C (MassDEP 2007))

The Housatonic River Watershed 2002 Water Quality Assessment Report (MassDEP 2007) includes an assessment of and provides the status of each of the designated uses assigned to this class of water (Class B). The aquatic life, primary and secondary contact recreation, and aesthetics designated uses are assessed as impaired in the upper 9.2 miles of this segment (which encompasses the Lee WWTF discharge) due to elevated total phosphorus and objectionable algal growth. The results of the MassDEP's physical, chemical, and biological sampling as well as the results of biological and habitat assessments that were conducted over several months in 2002 and the overall findings presented in the Housatonic River Watershed 2002 Water Quality Assessment Report (MassDEP 2007) were used to support the development of the most recent 303(d) listing of waters not attaining designated uses, which is submitted to EPA every two years in accordance with CWA Section 303(d). The 303(d) list identifies the water bodies in a particular state that are not in attainment of water quality standards (i.e., one or more designated uses are impaired) or are not expected to be in attainment of water quality standards following the implementation of technology-based controls and also identifies (where possible) the pollutants that are causing impairment. In April of 2008, MassDEP submitted the proposed Massachusetts Year 2008 Integrated List of Waters (303(d) List) to EPA. In the proposed list, the segment of the Housatonic River where the Lee WWTF discharge outfall is located (MA 21-19) is listed as impaired due to excess algal growth, total phosphorus, polychlorinated biphenyls (PCBs) and PCBs in fish tissue (proposed Massachusetts Year 2008 Integrated List of Waters (MassDEP 2008)). In addition, further downstream in Connecticut, chlorophyll *a*, nutrient/eutrophication biological indicators, excessive algal growth, and taste/odor are listed as causing an impairment of recreational uses in Lake Lillinonah (a downstream impoundment in Connecticut) in the State of Connecticut's 2006 Integrated Water Quality Report to Congress (CT DEP 2006) as well as in the draft State of Connecticut 2008 Integrated Water Quality Report (CT DEP 2008) (both of which include the State's 303(d) listing of waters not attaining designated uses). Sources listed as potentially contributing these pollutants include agriculture, unspecified urban stormwater, non-point sources, and municipal point source discharges (2006 Integrated Water Quality Report to Congress (CT DEP 2006) and draft State of Connecticut 2008 Integrated Water Quality Report (CT DEP 2008).

As described in the fact sheet, the Housatonic River also receives discharges of treated effluent from the Pittsfield and Lenox WWTPs, both of which are located upstream from the Lee WWTF. The NPDES discharge permit for the Lenox WWTP was developed and re-issued prior to the availability of some of the information used in the preparation of the draft permit for the Lee WWTF. It is expected that the next permit issued to this facility will include a phosphorus limit more stringent than the current limit of 1.0 mg/l. It is anticipated that the 0.1 mg/l seasonal total phosphorus limit contained in the recently-issued (August 8, 2008) NPDES discharge permit for the Pittsfield WWTP will significantly decrease loadings of phosphorus from this facility, which, with a design flow of 17 MGD, is the largest municipal discharger on the river. However, what is not clear is how long it will take before the effects of the decrease in phosphorus loadings upstream will be observed downstream, particularly downstream from Woods Pond, an impoundment located upstream from the Lee WWTF in Lenox. Depending on the physical, chemical, and biological processes occurring within an impoundment, phosphorus that had been sequestered by aquatic plants and/or in sediments may be released into and/or re-suspended in the water column, rendering it available for biological uptake either within the impoundment or in downstream waters (see Water Quality Criteria for Water, pg. 241 (USEPA 1986) and Nutrient Criteria Technical Guidance Manual – Rivers and Streams, Chapt. 1, pg. 3 (USEPA 2000 [EPA822-B-00-002]). Therefore, although the instream phosphorus concentration upstream from Woods Pond is likely to decrease in the near future, due to the Pond's dynamics, the reduced upstream phosphorus loadings may not be realized downstream from the Pond for some time.

In order to develop a limit for the Lee WWTF which would reflect the anticipated decrease in upstream phosphorus loadings, it was assumed that the instream phosphorus concentration immediately upstream from the facility will approach 0.09 mg/l. This equation, which back-calculates the upstream phosphorus concentration, assumes that the recommended instream phosphorus criteria of 0.1 mg/l will be met in the receiving water upstream from Woods Pond (C_r = 0.1 mg/l) as phosphorus loadings from the Pittsfield WWTP are reduced. The concentration of phosphorus discharged from the Lee WWTF was also used in this estimate. The phosphorus concentration in the Lee WWTF's effluent was set to what is considered to be the highest and best practical treatment for phosphorus for POTWs (C_d = 0.2 mg/l). The 7Q10 flow of the receiving water upstream from the discharge (Q_s = 40.3 cfs), the design flow of the facility (Q_d = 1.5 MGD = 2.325 cfs), and the receiving water flow downstream of the discharge ($Q_r = Q_d + Q_s$ = 2.325 + 40.3 = 42.6 cfs), were also used in the calculation as shown below.

$$C_s = Q_rC_r - Q_dC_d / Q_s$$

C_s = [(42.6 cfs)(0.1 mg/l) – (2.325 cfs)(0.2 mg/l)] / 40.3 cfs = 0.094 mg/l ~ 0.09 mg/l

Assuming that the upstream phosphorus concentration will approach 0.09 mg/l (C_s = 0.09 mg/l) as more stringent phosphorus limits are imposed upon municipal dischargers to the river, discharges of phosphorus from the Lee WWTF in concentrations equal to a limit of 0.2 mg/l (C_d = 0.2 mg/l) will result in the receiving water downstream from the Lee WWTF meeting the recommended Gold Book criterion of 0.1 mg/l, as shown below.

$$C_r = Q_sC_s + Q_dC_d / Q_r$$

$$C_r = (40.3 \text{ cfs})(0.09 \text{ mg/l}) + (2.325 \text{ cfs})(0.2 \text{ mg/l}) / 42.6 \text{ cfs} = 0.099 \text{ mg/l} \sim 0.1 \text{ mg/l}$$

Based on an extensive review of available information and the analyses presented above, which provide clear and convincing evidence of water quality impairments in the receiving water due nutrients, EPA has determined that a phosphorus limitation of 0.2 mg/l is necessary at this time to ensure that water quality standards will be met in the downstream receiving water at all times.

Financial/Operation and Maintenance (O&M) Considerations and Compliance Schedule

The above comment, prepared by Metcalf & Eddy, Inc., references discussions and correspondence with MassDEP that took place prior to and during the facilities planning stage that led to the incorporation of several provisions into the final design of the new facility that would enable the new WWTF to effectively discharge effluent that would meet an 0.2 mg/l phosphorus limit at some point in the "future". The above comment also states that both Metcalf & Eddy, Inc. and the permittee understood that a 0.2 mg/l phosphorus limit was not likely to be included in a reissued NPDES permit for several years. EPA does not dispute the fact that the information that was available at the time these discussions took place likely did not suggest anything to the contrary. However, pursuant to 40 CFR § 122.44(d)(vi)(A) and (B), while conducting an extensive review of the most currently available information (again, some of which became available as recently as the end of 2007) and the analyses presented above, EPA has determined that a phosphorus limitation of 0.2 mg/l is necessary at this time to ensure that water quality standards will be met in the receiving water at all times, and shall remain in the final permit.

EPA is generally prohibited from considering cost when determining whether a water quality-based limit is necessary and when developing an appropriate limit. Section 301(b)(1)(C) of the CWA requires achievement of "any more stringent limitations than the technology-based requirements set forth in Section 301(b)(1)(A) and (B), including those necessary to meet water quality standards established pursuant to any State law or regulation.." Therefore, NPDES permits must contain effluent limitations which are sufficiently stringent to attain and maintain the water quality in the receiving water, in the absence of considering the cost to achieve such limits, availability or effectiveness of treatment technologies. (*See U.S. Steel Corp. vs. Train, 556 F.2d 822, 838 (7th Cir. 1977) [finding "states are free to force technology" and "if the states wish to achieve better water quality, they may [do so], even at the cost of economic and social dislocation"*]).

While the CWA precludes EPA from considering economic impacts when developing effluent limits, the costs involved in achieving compliance with a water quality-based effluent limitation, including the costs involved in the planning, design, and construction of new or upgraded facilities, may be taken into account when establishing a reasonable schedule of compliance leading towards meeting a water quality-based effluent limitation.

A proposal submitted by the commenter presents two alternatives for implementing a lower phosphorus limit (see **Appendix B**). The two schedules call for the phased implementation of lower phosphorus limits over a sixteen-year period, with the first proposal aimed at meeting a phosphorus limit of 0.4 mg/l and second for a limit of 0.2 mg/l (see **Appendix B**). As described in the preceding paragraphs, the impairment of designated uses in this segment of the Housatonic River as well as in a downstream impoundment in Connecticut as a result of the effects of nutrient enrichment provides support for EPA's conclusion that a seasonal phosphorus limit of 0.2 mg/l is warranted at this time. The timeframe allowed for coming into compliance with a water quality-based effluent limit (i.e., the compliance schedule) is based on several factors, amongst them being the length of time that would be needed for the planning (including the procurement of adequate funding), design and construction of any new or additional facilities or upgrades to existing facilities that are necessary for achieving the limit. The Lee WWTF is a brand new facility, having been in operation since March 2008. In addition, as alluded to in the above comment, the design of the facility is such that meeting a phosphorus limit of 0.2 mg/l is entirely within the capability of the new facility, save for the acquisition and installation of a polymer storage/blend/feed system and the purchase of any chemical in addition to what is currently used by the facility, and does not warrant the sixteen-year long implementation schedule of a 0.2 mg/l phosphorus limit, as proposed by the permittee. Additionally, the implementation schedule proposed by the permittee is not reasonable considering the potential for the discharge to cause or contribute to excursions of water quality criteria in the receiving water and the documented eutrophic conditions and related impairment in the Housatonic River, particularly in the segment into which the Lee WWTF discharges. Since the new facility already includes the space needed for the placement of additional equipment that would enable the facility to treat wastewater sufficiently so as to meet an 0.2 mg/l phosphorus limit, allowance of an extended compliance schedule that would allow time for securing funding, planning, design and construction of additional facilities would likely not apply in this case. However, the commenter also cites the costs and impacts associated with additional chemical consumption (including increased operation and maintenance expenses), additional sludge production (and costs associated with disposal), and a very short operating history of the new facility as being additional concerns associated with the implementation of a 0.2 mg/l phosphorus upon the reissued permit becoming effective. Such concerns would likely be considered in the development of a compliance schedule aimed at achieving the new phosphorus limit.

For all of the reasons discussed above, the total phosphorus limits proposed in the draft permit shall remain in the final permit. However, the seasonal phosphorus limits in the final permit shall become effective as follows: The 1.0 mg/l and 12.5 lbs/day seasonal (November 1st – March 31st) total phosphorus limits in the final permit shall become effective November 1, 2009. The permittee shall report the average monthly and maximum daily values of total phosphorus in the discharge for the months of the first winter period in which the final permit is in effect (December 1, 2008 – March 31, 2009 (also see Part I.C., Effective Dates for Phosphorus Limitations, of the final permit).

If the permittee does not believe that they will be able to purchase and install the equipment needed to meet the 0.2 mg/l phosphorus limit by April 1, 2009, they may request that a

compliance schedule for achieving the new limit be developed from the EPA Region I Compliance Office. In addition, if the permittee believes required controls would result in widespread social and economic impact to the community, they could request the state to prepare a use attainability analysis (UAA) to remove the designated use in the receiving water associated with the more stringent limits (see 40 CFR Part 131.10(g)).

Comment A.2.

Dissolved Oxygen Effluent Limit

The draft permit contains a new discharge limit for dissolved oxygen (DO) of 5.0 mg/L (minimum) at all times.

The Town has been monitoring effluent DO on occasion since startup of the new WWTF in mid-March, 2008. As you witnessed during the tour of the facility on April 9th, the plant effluent is discharged over sharp-crested weirs from the AquaDisk Filters, then flows through a narrow UV disinfection channel, over another fixed weir, and into a headbox prior to flowing through a 24-inch discharge pipe to the Housatonic River. Measured DO from grab samples ranges from a low of 2.7 mg/L to more typical values of 4 to 6.5 mg/L – somewhat lower than the EPA/DEP proposed minimum requirement of 5.0 mg/L at all times. [it should be stressed that these results are based on limited data collected over the first couple months of operation.] To rectify this arguably minor shortcoming, the Town would be required to take the following action: design the necessary equipment modifications (e.g. aeration blower, air piping and diffuser, and associated electrical land controls), procure the equipment and material, and construct the increase in O&M costs at the WWTF. The cost of the modifications and the continuing O&M requirements are not commensurate with the marginal gain in effluent DO.

<u>Recommended Action:</u> From the performance of the recently completed existing facilities, it is apparent that the effluent DO may routinely be expected to reach say a minimum of about 3 mg/L. This is significant in terms of a percentage of the 5.0 mg/L standard and we feel justifies the deletion of the strict numerical limit in favor of daily monitoring (grab sample). With continued monitoring, we may find that the typical performance is closer to 5 mg/L.

Response to Comment A.2.

Following the initial submittal of this comment during the development of the draft permit (June 13, 2008), EPA agreed with the commenter's argument regarding the lack of dissolved oxygen data that could reasonably be considered to be representative of the discharge and also agreed that a dissolved oxygen monitoring requirement would serve to establish a robust dataset which can be used in the future to evaluate the dissolved oxygen content in the discharge and to determine what, if any, negative effects the dissolved oxygen content in the discharge may have on the downstream receiving water. Therefore, a daily monitoring requirement for dissolved oxygen was included in the draft permit

released for public comment. The dissolved oxygen monitoring requirement proposed in the draft permit shall remain unchanged from the draft.

Comment A.3.

Redundancy in Effluent Disinfection Parameters (E. coli, Fecal Coliform)

The draft permit requires seasonal effluent disinfection with two bacteriological parameters – E. coli and Fecal Coliform Bacteria. It was noted by DEP at our meeting that this is a redundant sampling and analysis scheme-the elimination of which would help the Town optimize use of O&M resources in this area.

Recommended Action: We understand from our discussions with Mr. Hogan that some communities have opted/been granted the opportunity to conduct E. Coli sampling and analysis as the sole basis for measuring effectiveness of the bactericidal efficiency of their disinfection systems. We recommend that the Town be granted this same flexibility for the sake of optimization.

Response A.3.

As requested, following EPA's initial receipt of this comment (June 13, 2008), the interim fecal coliform bacteria effluent limitations and concurrent *E. coli* monitoring requirements were removed from the earlier version of the draft permit early in the permit development process, and were not included in the draft permit released for public comment. The interim fecal coliform limits were removed from the draft permit which was released for comment with the understanding that the permittee was waiving the one-year compliance schedule for meeting the *E. coli* limitations, and that the *E. coli* limits would go into effect when the final permit becomes effective.

The *E. coli* limitations and monitoring requirements proposed in the draft permit shall remain in the final permit.

Comment A.4.

Local Political Climate – Issues of Fairness

As was discussed at length during our meeting at the site, there are a number of issues that make implementation of the new provisions of the NPDES permit especially problematic. We do not want to belabor the points raised at our meeting but we do wish to state these items for the record:

1. *The new $19 Million (construction cost only) WWTF is completed with the exception of punch-list items which are being addressed expeditiously. Implementation of new provisions of the Permit that require additional capital expenditures for additional equipment will be costly – requiring additional design services, procurement of a contactor, and local financing (as these items*

will not be part of the now completed SFR-financed project). In addition, it would be preferable to gain operating experience with the new facilities before "jumping ahead" with modifications so that such modifications could be optimized.

2. *It is noted that EPA and MADEP are motivated by their actions solely by the findings of the Housatonic River Watershed – 2002 Water Quality Assessment Report (issued September 2007) and that the downward pressure on effluent parameters such as TP is "technology-based". However, there is a perception by some that the Town is being treated unfairly by the regulatory community with the expectation that the new limits and/or parameters are to be implemented immediately in this new Permit cycle. In contrast, some other communities with recent Permit renewals such as Great Barrington WWTF (March 13, 2007) and Lenox WWTP (September 12, 2007) still are operating under a TP limit of 1.0 mg/L. Lee's existing Permit was set for renewal on September 22, 2005. This in and of itself we feel justifies a phased implementation of any new standard for the Town of Lee.*

<u>Recommended Action</u>: Based on the foregoing discussion, we recommend adopting the recommendations described herein. We see such an approach as a "Win-win" for the regulatory community and the local constituency who is already demonstrably committed to its role as steward for the Housatonic watershed area. By virtue of its flexibility in this matter, the EPA and MADEP would be put in a more favorable light.

Response A.4.

EPA recognizes and commends the steps taken by the Town of Lee to invest in the construction of the new advanced wastewater treatment facility which incorporates technological advances into its design that will provide for a greater degree of wastewater treatment and environmental protection.

Irrespective of all other factors, EPA is required to include any limitations and conditions in NPDES discharge permits in addition to or more stringent than technology-based limits that are necessary to achieve state water quality standards in the receiving water, including narrative criteria for water quality (CWA Section 301(b)(1)(C) and 40 CFR § 122.44(d)). Water quality-based effluent limits are established strictly on the basis of meeting and/or maintaining water quality standards in the receiving water. The information and procedures used to determine the need for and to derive the 0.2 mg/l phosphorus limit contained within the draft permit are consistent with the requirements of 40 CFR § 122.44(d)(1)(ii), 40 CFR § 122.44(d)(1)(v) and 40 CFR § 122.44(d)(1)(vi)(A) and (B) and also conform with the procedures followed by EPA Region I in making decisions regarding the imposition of water quality-based effluent limits in NPDES permits. Following a close review and consideration of applicable regulations, water quality standards, technical guidance, scientific literature, and other sources of information such as receiving water quality data, stream survey results, available dilution in the receiving water at the point of discharge and the design flow of the permitted facility, EPA concluded that a total

phosphorus limit of 0.2 mg/l is necessary to ensure that the water quality standards in the receiving water will be met at all times.

The fact that the Lee WWTF's permit (which was issued in 2000) was administratively continued upon EPA's determination that the permittee's application for reissuance of their permit was complete and submitted in a timely manner in November 2005 (pursuant to 40 CFR § 122.6) does not justify the long-term phased approach presented by the permittee for the implementation of the 0.2 mg/l phosphorus limit proposed in the draft permit (see **Attachment B**) nor does it preclude EPA from establishing such a limit in the reissued permit since it is clear that this limit is necessary at this time in order to adequately protect the quality of the receiving water (also see the response to comment A.1.).

As explained in the response to the previous comment, current data and information pertaining to the quality of the receiving water, some of which became available as recently as late 2007, strongly suggests that nutrient inputs are causing a eutrophic response within the Housatonic River and its impoundments. It is anticipated that as with the discharge permit that was recently issued (August 22, 2008) to the Pittsfield WWTP (as well as the draft permit for the Lee WWTF), reissued discharge permits for other POTWs that discharge to the Housatonic River will include more stringent phosphorus limits as they come up for renewal. Again, the permittee may present their argument for an alternative compliance schedule to the EPA Region I Compliance Office, the EPA office responsible for the development and administration of compliance orders. Also, the permittee may request the State of Massachusetts to prepare a use attainability analysis (UAA) to remove the designated use in the receiving water associated with the more stringent limits if they believe that the controls required to meet the 0.2 mg/l phosphorus limit will result in substantial and widespread economic and social impact to the community (see 40 CFR Part 131.10(g)(6). The total phosphorus limitations and conditions in the draft permit shall remain unchanged in the final permit, with the exception that seasonal (November 1st – March 31st) 1.0 mg/l (and 12.5 lbs/day) phosphorus limit and ortho-phosphorus monitoring requirement in the final permit shall become effective on November 1, 2009. The permittee shall report the average monthly and maximum daily discharges of total phosphorus for the months of the first winter period in which the final permit is in effect (December 1, 2008 – March 31, 2009) (see Part I.C., Effective Dates for Phosphorus Limitations, of the final permit).

B. Comments prepared by William Enser, member of the Lee Board of Public Works and submitted by Chris Pompi, Superintendent, Lee Department of Public Works, dated August 11, 2008.
Opening Comment:

The following are my comments pertaining to the Draft NPDES Permit for the Lee Wastewater Treatment Plant, Date of Notice, July 14, 2008 as well as Metcalf & Eddy's response dated June 13, 2008.

Response to Opening Comment:

Please see the following responses to the comments contained in the letter dated August 11, 2008.

B.1: First: Metcalf & Eddy's Response

Comment B.1.a.

As you can see M&E's response predated the current draft, hence the probable reason for the following errors: #1 there is no minimum Dissolved Oxygen requirement and #2 there is no Fecal Coliform Limit requirement.

Response to Comment B.1.a.

As discussed earlier in this response to comments document, the June 13, 2008 that was prepared by Metcalf & Eddy, Inc. was submitted to EPA during the development of the draft permit, following a site visit and meeting between EPA, MassDEP, and representatives from the Town of Lee, the purpose of which was, amongst other factors, to finalize the limitations and conditions of the draft permit. Consequently, several of the modifications presented in the document dated June 13, 2008, were made to the draft permit prior to its release for public comment.

The dissolved oxygen (DO) limitation that had been included in an early version of the draft permit was removed from the version released for public comment upon EPA's and MassDEP's determination that additional DO data was needed in order to adequately evaluate the impact the impact of the dissolved oxygen content of the effluent on the receiving water (also see the response to comment A.2.).

The fecal coliform bacteria limitations were removed from the draft permit in favor of the *E. coli* limitations at the request of the permittee (also see the response to comment A.3).

Comment B.1.b.

M&E states that within the Local Political Climate there are Issues of Fairness related to requiring a Phosphorus Limit of 0.2 mg/l. I agree. However, if the Fact Sheet Figure #1 for this Permit is accurate it appears that the Lee Wastewater Treatment Plant is a significant Phosphorus contributor to the Housatonic River. Said Figure's upstream sampling point is in Lenox and the downstream sampling point is 300 feet below the outfall of the Lee Wastewater Treatment Plant. First of all where is the upstream, Lenox sampling point. At the very least there were two Schweitzer-Mauduit Paper mill discharge points and potentially Lenox's own treatment plant discharge, if Woods Pond outlet is site 19A. Please note that sites 19B and 19D are not illustrated. The data for this study was collected in 2002, six years ago. Since that time, the Lee Wastewater Treatment Plant has been treating to reduce its Phosphorus discharges at the old plant and the new plant should be even better in removing Phosphorus. Without knowing the above facts that were not provided in the "Fact Sheet" it is not fair to the Taxpayers of Lee to shoulder the economic

burden of having to meet a 0.2 mg/l Phosphorus limit. In addition, if one looks at M&E's Alternatives, Start of Year 1, since the Average daily flow is projected to be well below 1.5 MGD, a 0.8 mg/l limit April 1 – October 31 is below the Stream Loading values sought in the Draft Permit and I believe if you look at the actual performance of the new plant the values are significantly better. Hence mandating a 0.2 mg/l phosphorus level in this first 5 year permit is unfair.

Response B.1.b.

In accordance with the requirements of 40 CFR § 122.44(d), any limitations in addition to or more stringent than technology-based effluent limits (i.e., water quality-based effluent limits) must be incorporated into discharge permit when such limits are necessary for ensuring that water quality standards are attained and/or maintained in the receiving water.

EPA's decision to include the 0.2 mg/l phosphorus limit in the draft permit was made following an extensive review of the information available at the time the draft permit was being developed with regarding the water quality of the Housatonic River and the impact that discharges of treated effluent from the Lee WWTF may have on the receiving water. The information and procedures used to determine the need for and to derive the 0.2 mg/l phosphorus limit are consistent with the requirements of 40 CFR § 122.44(d) (1)(ii), 40 CFR § 122.44(d)(1)(v) and 40 CFR § 122.44(d)(1)(vi)(A) and (B) and also conform with the procedures followed by EPA Region I in making decisions regarding the imposition of water quality-based effluent limits in NPDES permits.

In addition to applicable regulations, water quality standards, technical guidance, and scientific literature, other sources of information such as receiving water quality data, stream survey results, the available dilution in the receiving water, the design flow of the permitted facility and effluent monitoring data are among the information taken into consideration when determining appropriate effluent limitations.

The Housatonic River Watershed 2002 Water Quality Assessment Report (MassDEP 2007) represents the most current comprehensive assessment of the ecological status of the River, and as such, was used to evaluate the quality of the receiving water and to assess the impacts that discharges of phosphorus from the Lee WWTF might have downstream. Conditions upstream from the Lee WWTF were considered to both determine that the 1.0 mg/l phosphorus limit contained in the permit issued in 2000 was not adequately protective of the quality of the receiving water downstream from the discharge and to estimate the instream phosphorus concentration upstream from the Lee WWTP following the incorporation of the 0.1 mg/l phosphorus limit contained in the reissued discharge permit for the Pittsfield WWTP. EPA recognizes the initiatives taken by the community of Lee to both reduce the quantities of phosphorus discharged from the previous facility and to construct an advanced wastewater treatment facility, which demonstrates their commitment to the overall health of the environment. However, this does not negate the fact that the information available at the time the draft permit was developed, including the Housatonic River Watershed 2002 Water Quality Assessment Report (MassDEP 2007), the proposed Massachusetts Year 2008 Integrated List of Waters (MassDEP 2008), the State of

Connecticut's 2006 Integrated Water Quality Report to Congress (CT DEP 2006) and the proposed 2008 Integrated Water Quality Report to Congress (CT DEP 2008), provides convincing evidence that the eutrophic conditions observed and measured in the Housatonic River, and in particular within the segment of the river into where the Lee WWTF discharge outfall is located, are in response to excessive inputs of phosphorus in part from municipal point sources.

As described in the fact sheet and in the response to comment A.1., following a close examination of all of these factors, EPA concluded that a total phosphorus limit of 0.2 mg/l is necessary to ensure that the water quality standards in the receiving water will be met at all times.

For the reasons stated above (as well as in the response to comment A.1., the final permit includes a seasonal (April 1st - October 31st) phosphorus limit of 0.2 mg/l (and 2.5 lbs/day), which shall become effective on April 1, 2009. The final permit also includes a seasonal (November 1st – March 31st) 1.0 mg/l (and 12.5 lbs/day) phosphorus limit and an ortho-phosphorus monitoring requirement, which shall go into effect on November 1, 2009. For the months of the first winter period in which the final permit is in effect (December 1, 2008 – March 31, 2009), the average monthly and maximum daily values of total phosphorus in the discharge shall be reported (see Part I.C., Effective Dates for Phosphorus Limitations, of the final permit).

For clarification, there were not any sampling stations designated as 19B or 19D during the surveys conducted by MassDEP in 2002, the results of which were presented in the Housatonic River Watershed 2002 Water Quality Assessment Report, Appendix B (MassDEP 2007) and discussed in the fact sheet that accompanied the draft permit.

With respect to the alternative phosphorus limit implementation schedule proposed by Metcalf & Eddy, Inc. (**Appendix B**), phosphorus loadings values and recommended limits are based on projections of flow over a sixteen-year period. Effluent limits for POTWs must be based on the design flow of the facility, and not actual or projected flows, in accordance with the provisions of 40 CFR § 122.45(b). In addition, the effects of excess inputs of nutrients are negatively impacting the quality of the receiving water, which warrants more immediate implementation of controls to reduce such inputs. Also, as discussed in comment A.1., since the Lee WWTF was constructed with certain provisions in place for achieving a phosphorus limit of 0.2 mg/l, an extended long-term schedule for coming into compliance with the limit proposed in the draft permit is not applicable in this situation. If the permittee does not believe that they will not be able to procure and install the equipment necessary to achieve the 0.2 mg/l phosphorus limit by April 1st, 2009, they may contact the EPA Region I Compliance Office and request that a schedule for meeting the new limits be developed.

Also, if the permittee believes that the controls required to achieve the 0.2 mg/l phosphorus limit in the final permit would result in widespread social and economic impact to the community, they could request the state to prepare a use attainability analysis (UAA) to

remove the designated uses from the receiving water associated with the more stringent limits (see 40 CFR Part 131.10(g)).

B.2. Second: Responses to the Draft Permit

Except for the Phosphorus limit I have no major problems with the 13 page Draft Permit but I do have a few comments.

Comment B.2.a.

Without requiring daily monitoring of the river for pH, how do we document compliance with the secondary pH limitation of +/- 0.5 pH units outside of the natural background range. Alum, used to remove Phosphorus from our effluent is acidic; hence it will significantly lower the pH of our effluent. If we do not monitor the pH of the River daily we could be noncompliant and cited.

Response B.2.a.

Permittees are generally not required to conduct in-stream monitoring for pH. The permittee will be in compliance with the pH limit if the pH of the effluent is within the range of 6.5–8.3 Standard Units (SU). EPA may conduct instream monitoring or may require the permittee to conduct instream monitoring by means of a CWA Section 308 request if EPA determines that instream pH data in addition to what has been collected in the past by MassDEP is required. There have been no changes to the pH limit in the final permit from the draft.

Comment B.2.b.

Page 4 of 13 the second Total Ammonia Nitrogen mg/ should be mg/l.

Response B.2.b.

The unit of measurement for the monthly influent and effluent total ammonia nitrogen monitoring requirement has been changed from “mg/” to “mg/l” in the final permit.

Comment B.2.c.

To get the best handle on our Aluminum discharges it would be better to manually composite weekly 24 hour composites over the month rather than to risk one sample per month. We are adding Alum, Aluminum Sulfate for Phosphorus control and except for a few minutes there is no added cost to the Taxpayers.

Response B.2.c.

The permittee may collect additional samples for any parameter beyond those required by the permit (i.e., the permittee may collect effluent samples to be analyzed for aluminum in

addition to the monthly 24-hour composite sample required by the draft permit). However, the results of such sampling and analyses using any method approved under 40 CFR Part 136 must be included in the calculation and reporting of the data submitted in the discharge monitoring report for the particular month in which additional monitoring was conducted in accordance with the requirements of 40 CFR § 122.41(l)(4) and Part II.D.1.a.2 of the final permit. The final permit remains unchanged from the draft with respect to the aluminum monitoring requirement.

Comment B.2.d.

Since we intend to treat a lot more septage, which has elevated contaminate levels over the incoming wastewater, Phosphorus and Nitrogen composites should be analyzed during peak septage loading.

Response B.2.d.

Samples and measurements taken for the purpose of monitoring for compliance with permit limits must be representative of the discharge in accordance with Part I.A.1.f. and Part II.C.1. of the final permit, and also in accordance with 40 CFR § 122.41(j). The selective scheduling of sample collection to capture a specific event is has the potential to yield data that is not representative of the discharge. Therefore, a weekly sample that is collected over a twenty-four hour period provides a more accurate representation of the quality of the effluent being discharged. The monitoring frequency and sample type (twenty-four hour composite) for phosphorus and nitrogen in the draft permit shall remain unchanged in the final permit.

The permittee may collect additional samples for any parameter beyond those required by the permit in order to understand how an increase in septage affects the quality of the wastewater. However, the results of such sampling and analyses using any method approved under 40 CFR Part 136 must be included in the calculation and reporting of the data submitted in the discharge monitoring report for the particular month in which additional monitoring was conducted in accordance with the requirements of 40 CFR § 122.41(l)(4) and Part II.D.1.a.2 of the final permit.

Comment B.3a.

I do have major issues with the "Fact Sheet" attachment to this Draft Permit. On page 3 of 44 Paragraph 2 "This facility does not currently serve any industrial users, nor does it anticipate serving any during the life of the re-issued permit." You are well aware of the interest of local industries to have us treat small amounts of industrial waste. The Draft permit Part I.A.2. Pages 7&8 of 13 adequately outlines how said industrial discharges could be permitted. Said statement should be stricken and replaced with reference to Part I.A.2. If we have the capacity to treat, and the "industrial discharge" does not degrade the physical/mechanical plant, nor the quality of effluent including sludge, we cannot afford to discourage industry and jobs. In addition, on page 20 of 25 NPDES Part II STANDARD CONDITIONS definitions "Industrial wastewater is wastewater generated in a commercial

or industrial process." Even though said definition is within Section 2. Definitions for NPDES Permit Sludge use and Disposal Requirements it is a cited definition and we do have without question small amounts of commercial process water discharged into our sewer collection system.

Response B.3.a.

Pretreatment conditions are included in NPDES permits issued to POTWs to address certain types and categories of discharges that may be present in the wastestream flowing through some POTWs. Although implemented through NPDES discharge permits, the National Pretreatment Program is administered separately from the NPDES program under the provisions of the National Pretreatment Regulations, which are found at 40 CFR Part 403.

NPDES discharge permits issued to POTWs include a requirement for the implementation of an industrial pretreatment program (IPP) if they accept discharges of process wastewater from any significant industrial user (SIU). A significant industrial users is defined at 40 CFR §403.3(t) as "(1) all industrial users subject to Categorical Pretreatment Standards under 40 CFR § 403.6 and 40 CFR Chapter I, Subchapter N; and (2) any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (excluding sanitary, non-contact cooling, and boiler blowdown wastewater); contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or is designated as such by the Control Authority as defined in 40 CFR 403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6))"

Industrial wastewater, as defined in the Definitions for NPDES Permit Sludge Use and Disposal Requirements in Part II.E.2. of the draft permit (as well as the final permit), is "wastewater generated in a commercial or industrial process" (also see 40 CFR § 503.9(n)). Although the Lee WWTF may in fact receive a small amount of "industrial wastewater", its character and quantity may not require the implementation of an IPP by the POTW.

The information provided by the permittee in their NPDES permit application as well as through discussions with EPA and MassDEP did not indicate that they receive any discharges from an "industrial user", as defined within the regulatory context of the word (see 40 CFR 403.8(f)(6)). The issue of the possibility of the Lee WWTF accepting discharges of wastewater from industrial users in the surrounding community sometime in the future was raised during a meeting attended at the site by EPA, MassDEP, Metcalf & Eddy, Inc., and representatives from the Town in April 2008. Since the regulations governing such discharges are under the scope of the National Pretreatment Program, the permittee was advised to contact the EPA Region I Pretreatment Program Coordinator to discuss this issue.

EPA does not preclude POTWs from accepting flow from industrial users so long as the wastewater does not pass through the POTW or interfere with the operation of the facility and, when required, the POTW implements an approved pretreatment program (see 40 CFR Part 403). In the event that the Lee WWTF does begin accepting such discharges, they shall provide proper notification to EPA in accordance with the requirements contained in Part I.A.2. of the final permit.

Comment B.3.b.

Page 4 of 44: *A. Process Description*

Paragraph 1 "At the present time, the facility does not serve any industrial users." The statement is false and should be stricken.

Response B.3.b.

Part I.A.2. of the NPDES permit issued to the Lee WWTF in 2000 requires that the permittee notify EPA of any introduction of wastewater into the facility by an industrial user, as defined at 40 CFR §403.3(t) (also see response to comment B.3.a.). To date, EPA has not received such notification, nor has it received information from the permittee during correspondence which occurred between the permittee and EPA during the development of the draft permit which would suggest anything to the contrary.

Comment B.3.c.

Page 4 of 44: A. Process Description

Paragraph 3 "Aluminum sulfate (Alum) is added to the SBR vessel during the aeration stage to enhance the removal of phosphorus from the wastewater through chemical precipitation." Is not Alum added at the exit of the flow equalization tank?

Response B.3.c.

EPA regrets the error in the fact sheet. Fact sheets are written to support the draft permit and are not revised as part of the final permit decision. The response to the above comment is noted here in the Response to Comments document, which becomes part of the administrative record. We do not believe that your correction necessitates any changes to the final permit.

Appendix A

Letter from Metcalf & Eddy, Inc. to MassDEP – April 4, 2005

METCALF & EDDY | AECOM

Metcalf & Eddy
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April 4, 2005

Mr. Mark Schleeweis
Bureau of Resource Protection
Western Regional Office
Department of Environmental Protection
43 Dwight Street
Springfield, MA 01103

Subject: Lee, Massachusetts WWTF Replacement Project – Projected Wastewater Flows and Effluent Discharge Limits

Dear Mr. Schleeweis:

Pursuant to our telephone discussion on Friday March 18, 2005 the purpose of this letter is to present the projected wastewater flows and effluent discharge limits for the subject project.

Background

The existing wastewater treatment facility (WWTF) was designed to treat an average daily flow of 1.0 million gallons per day (mgd) and a peak flow of 2.5 mgd. The WWTF periodically experiences excessive hydraulic loads resulting from both wet weather events and high groundwater. These hydraulic surges have historically created operational problems at the WWTF. Furthermore, since the mid to late 1990's, the annualized average daily flow exceeded 80-percent of the design average daily flow for a period of greater than 90 days. The DEP issued an Administrative Consent Order in 1998 to, among other things, begin facilities planning. The purpose of facilities planning was to prepare a plan to best address the hydraulic and treatment capacity at the WWTF. The Town has significantly improved compliance with its NPDES discharge permit. The improved compliance is due to operational changes implemented by plant staff and also by a change in the methodology used by the Department of Environmental Protection (DEP) to calculate the average daily flow. This change in methodology occurred in September 2000. Prior to September 2000, the permitted flow for the WWTF was 1.0 mgd expressed as an average monthly value. A permit violation would occur if the influent flow to the WWTF over a month averaged more that 1.0 mgd. The NPDES permit (#MA0100153) issued in September 2000 changed the method used to calculate the flow limit to an annual average. The annual average flow is reported each month and is calculated by using the monthly average flow from the reporting month and the monthly average flows from the preceding eleven (11) months. This allowed the annual average flow during wet weather and high groundwater months to be somewhat dampened by the months that were not wet and/or experienced low groundwater. Since this change in methodology, there have been no violations (i.e., WWTF experience 80-percent of the ADF for a consecutive 90-day period).

As a result of planning conducted by SEA Consultants (SEA) and as presented in the July 2001 Project Evaluation Report (PER), the proposed average design flow and maximum daily flow increased to 1.5 mgd and 2.7mgd, respectively. Based on our review of the PER, we believe SEA values for the proposed ADF (1.5mgd) are not substantiated since the ADF was probably adopted to ensure the Town's future flow needs would be accommodated. This approach may not be in the best financial interest of the Town due to the higher related costs for larger tankange and equipment capacities. Furthermore, there is a direct link between the ADF and future effluent limits which will be discussed later in this letter. M&E has approached the future flow projections from a "bottoms-up" analysis.

Appendix A

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Existing Wastewater Flows

To determine existing wastewater flows M&E analyzed influent flow data for the period from July 2001 through December 2004, not including November 2004 since data was not available. Flow records are generated by a magnetic flow meter located on the discharge side of the influent pumps. The average daily flow for this period was estimated to be about 0.83 mgd.

Current Residential Flow

According to the most recent US Census (2000), the population for the Town of Lee in 2000 was 5,985. Based upon conversations with Town Officials, approximately 85% of the population is sewered, thus resulting in an estimated current sewered population of approximately 5,087. This includes single and multi-family dwellings, apartments, and trailer parks. SEA's 2001 Preliminary Engineering Report, assumed wastewater generation rate of 65 gallons per capita per day (gpcd) for the population of Lee. Since the source of this value is not documented, we have elected to use 70 gpcd according to the "Guidelines for the Design of Wastewater Treatment Works," Technical Report No. 16, 1998 Edition (TR-16). This generation rate was used for calculating the current residential flow rate. Based on a sewered population of 5,087 and a 70 gpcd rate, the current residential flow was estimated as 356,090 gpd or 0.36 mgd.

Projected Residential Flow

The future residential flows were estimated by projecting the future sewered population in Lee and applying a residential flow allowance of 70 gpcd to this population.

To determine the future Lee populations, the following sources of population projections were evaluated: US Census Bureau (1940 – 2000); The Massachusetts Institute of Social and Economic Research (MISER); the Regional Economic Models, Inc. (REMi); and the Berkshire Regional Planning Commission (BRPC).

The US Census provides recorded population, but no projections at the City level. Projections based on US Census data were estimated by plotting a linear trend of the Lee populations from 1940 to 2000. MISER provides population projections for the county and city level, based from the most recent US Census recorded data. REMi provides population projections for the county level only, based from the US Census recorded data. The BRPC uses the REMi projections and their own developed formulas to project at the city level. The total population projection from these sources for the Town of Lee is presented in Table 1 and Figure 1.

TABLE 1. POPULATION PROJECTIONS FOR THE TOWN OF LEE

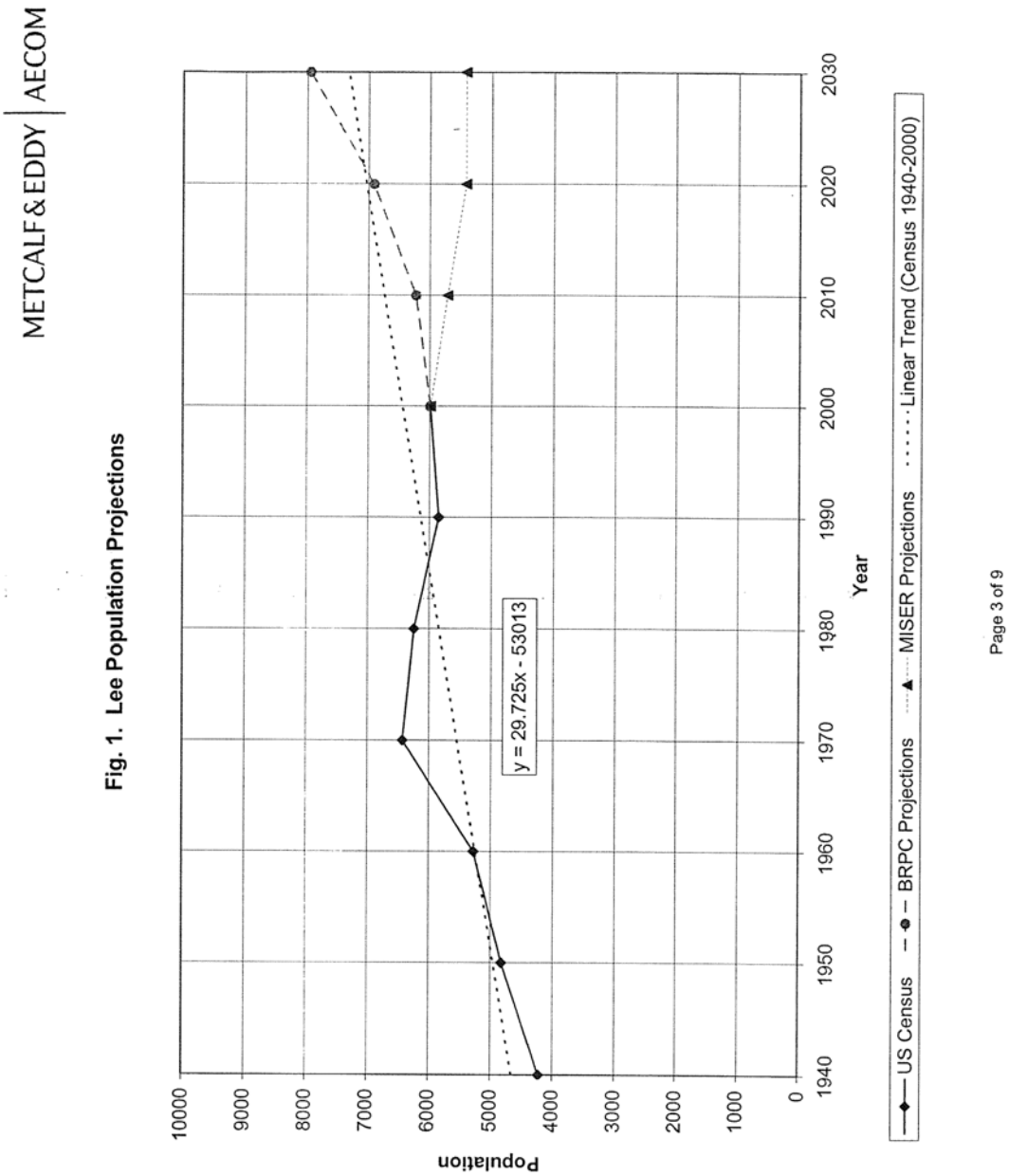
Source	2000	2007(1)	2010	2020	2027(1)	2030
US Census(2)	5,985	*6,645*	*6,734*	*7,032*	*7,240*	*7,329*
MISER	5,985	5,796	5,714	5,414	5,414	5,414
BRPC	5,985	6,153	6,225	6,910	7,633	7,943

(1) Projections for initial year 2007 and design 2027 completed by linear interpolation.

(2) Projections for US Census populations beyond 2000 estimated by linear trending of previous 60 years data (1940 – 2000) and shown in italics.

Discussions with the Town resulted in agreement that increasing growth projections of the BRPC are more in line with what is expected for Lee versus the projections of declining growth from MISER. Also, though the projected data shows US Census figures greater than the BRPC projections for the initial year of 2007, the BRPC design year 2027 projections are greater than the estimated 2027 US Census projection. This analysis used the projections of the BRPC due to the more conservative value in the design year.

Appendix A


METCALF & EDDY | AECOM
Fig. 1. Lee Population Projections
Population
Year
y = 29.725x - 53013
US Census
BRPC Projections
MISER Projections
Linear Trend (Census 1940-2000)
Page 3 of 9

Appendix A

For future growth, it was assumed that most of the new homes would be connected to the collection system, and that some existing homes using on-site disposal would convert to connection to the collection system. Although it may not be practical for the Town to connect all homes to the collection system, for this analysis, it was assumed that the current 85% sewered population ratio would remain for the initial year 2007, but would increase to 90% sewered population by the design year 2027. Using a wastewater generation allowance of 70 gpcd for projected residential flow, the projected design year residential flow is 483,000 gpd (7,633 x 0.90 x 70).

Current Commercial Flow

Per the SEA 2001 PER and based on discussions with the Town, the current commercial flow to the plant was estimated at approximately 100,000 gpd.

Projected Commercial Flow

The projected commercial flows were estimated based upon review of the Town's 2000 Master Plan and discussions with the Town that resulted in the assumption that a doubling of commercial flow by the design year 2027 is a reasonable value. Using the current commercial flow of 100,000 gpd, the projected design year commercial flow was estimated to be 200,000 gpd.

Septage Flow

Wastewater collected in on-lot systems (septic tanks) are collected by septage truck haulers and brought to the Lee WWTF and deposited directly into the headworks/comminutor basin. This source of wastewater flow is identified as septage flow.

Current Septage Flow

Currently, the WWTF accepts a maximum of 6,000 gpd of septage. Based on conversations with plant personnel it was estimated that the average daily septage flow was 5,000 gpd. It was assumed that the maximum of 6,000 gpd is accepted during the summer months and less during the off-summer months.

Projected Septage Flow

Local septage haulers were contacted and a survey was conducted to determine whether a demand existed for septage receiving that could prove to be a constant source of septage flow for the Lee WWTF. Based upon this telephone survey, it was concluded that if Lee decided to construct a separate septage receiving facility, the WWTF could see as much as 25,000 gpd of septage during the summer months, and about 5,000 gpd during the off months, for an average daily estimate of approximately 10,000 gpd. For this evaluation, it was considered that this 10,000 gpd of septage was the projected design year septage flow.

Current Infiltration

For this analysis, the current year average infiltration was determined by examining the daily flow data between July 2001 and December 2004. Additionally, M&E evaluated several of the daily flow strip charts produced by the plant to evaluate the base infiltration during the early morning hours and found the flow to be approximated 0.40 mgd. To estimate the average infiltration over the data set, the average domestic wastewater flow of 0.44 mgd (0.36 residential, 0.10 commercial) was subtracted from the ADF of 0.83 mgd, resulting in an estimation of the current average infiltration of 0.37 mgd. This value is comparable to the range of infiltration noted in the SEA 2001 PER of 0.23 to 0.48 mgd.

To estimate the projected average infiltration for the design years, it was assumed that although the Town may make efforts to remove infiltration from the system, M&E's experience is that at best only about 10 to 20% of the total infiltration can be cost-effectively removed from a sewer system of this age. Since at the present time the Town does not have an infiltration reduction program, for this analysis, it was assumed that infiltration would increase over the planning period particularly since much of the system has already been in service for several

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decades. We assumed that there would be a 30 to 50-percent increase in average infiltration. We used 50-percent in our calculation. Therefore, the projected average infiltration for the design year is 0.56 mgd.

Inflow

Inflow is typically determined by examining flow data that has continuous (hourly or more frequent if available) flow data for a length of time to capture normal dry weather flow to the plant as well as wet weather flow events. With this type of record information, the inflow would be estimated by taking the peak flow recorded during the wet weather event and subtracting the peak flow normally occurring during the dry weather time frame.

For this analysis, the flow monitoring that produced the data set between July 2001 and December 2004 was only capable of providing daily wastewater flow totals, and not more frequent data such as hourly data, which is typically used to determine the inflow. Therefore, in order to estimate the effects of inflow on projected flows to the plant, observed peaking factors were used to develop the inflow related flow estimations for the initial and design years. These peaking factors, which account for the expected inflow, are presented in this Section. Furthermore, we reviewed the peak inflow rates estimated by other (e.g., T&B 1987, T&B 1991, SEA 2001) and concluded that the estimates could not be reliably used for this analysis since the rates varied significantly. For example, as part of the 1991 SSES (Tighe & Bond) a peak inflow value of 2.25 mgd was estimated and 1.5 mgd of peak inflow was removed as a result of disconnecting a cross connection. However, as part of the 2001 PER SEA measured an inflow value of 2.02 mgd or about the same value that was measured before a peak inflow of 1.5 mgd was removed from the system.

Peaking Factors and Design Flows

The designed capacity sizing of treatment facility processes and equipment are based on a variety of flow estimations, and each estimation used for different processes and equipment. These flow estimations are average daily flow (ADF), maximum monthly flow (MMF), peak daily flow (PDF), and peak hourly flow (PHF). Peaking factors are often used to associate the flow estimations between each other.

Average Daily Flow

The average daily flow (ADF) is defined as the average flow occurring over 24-hours based on annual flow rate data. The components of the ADF are the average domestic wastewater flow (residential, commercial, and septage) and the average infiltration. For this analysis, the ADF for the current year was determined by examining the daily flow data between July 2001 and December 2004. The projected ADF for the design year was determined by adding the projected domestic wastewater flow to the projected average infiltration for each year. This results in a design year 2027 ADF of 1.25gd (0.69 domestic + 0.56 infiltration).

Maximum Monthly Flow

The maximum monthly flow (MMF) is defined as the maximum daily flows sustained for a period of one month in the record set examined. The components of the MMF include the average domestic wastewater flow (residential, commercial, and septage) as well as infiltration and inflow occurring during the month. For this analysis, the MMF for the current year was determined by examining the daily flow data between July 2001 and December 2004. The month with the maximum flow recorded was December 2003, having 39.26 mgd of flow over 31 days. This results in the current MMF of 1.27 mgd.

The projected MMF for the design year was determined by applying the observed peaking factor between the current year ADF and current year MMF. The current year peaking factor is 1.53 (1.27 mgd/0.83 mgd). This results in a design year 2027 MMF of 1.9 mgd (1.25 mgd x 1.53).

Peak Daily Flow

The peak daily flow (PDF) is defined as the highest daily flow sustained during the record set examined. The components of the PDF include the average domestic wastewater flow (residential, commercial, and septage) as

Appendix A

well as infiltration and inflow occurring during the day. For this analysis, the PDF for the current year was determined by examining the daily flow data between July 2001 and December 2004. The day with the maximum flow recorded was December 25, 2003, having recorded 2.37 mgd. It was observed that this value was exceeded in data reviewed between 1996 and 2001. Therefore, to account for the possibility of a higher PDF than recorded in the recent data set, an estimation for the current PDF was determined by doubling the current MMF of 1.27 mgd. This results in the current PDF of 2.54 mgd.

The projected PDF for the design year was determined by applying the peaking factor. The current year peaking factor between the ADF and PDF is 3.06 (2.54 mgd/0.83 mgd). This results in a design year 2027 PDF of 3.83 mgd (1.25 mgd x 3.06).

Peak Hourly Flow

The peak hourly flow (PHF) is defined as the peak flow sustained for a period of one hour in the record set examined, usually based on 10-minute increments. For this analysis, the data set examined from July 2001 to December 2004 was in daily increments, and more frequent interval data was not available. Per the SEA 2001 PER, it was noted that prior to 2001, a peak of 3.7 mgd was observed. The PER did not extrapolate as to whether this peak observed was an instantaneous peak or an hourly peak. Plant strip charts, which indicate when each pump activates during the day, were examined from July 2001 to December 2004. It was noted that the maximum pump flow rate of 3.24 mgd was observed. However, this was not sustained over an hour period. This suggests that the 3.7 mgd observed may have in fact been an instantaneous peak.

To estimate the hourly peak to the plant, it was assumed that while the instantaneous peak is higher than the maximum pump capacity of 3.24 mgd, this peak flow does not sustain higher than 3.24 mgd for an hour. Therefore, this analysis assumed that a current PHF of 3.24 mgd would reasonably estimate the total volume of flow processed by the plant during a peak hour interval.

The projected PHF for the design year was determined by applying the observed peaking factor. The current year peaking factor between the ADF and PHF is 3.9 (3.24 mgd/0.83 mgd). This results in a design year 2027 PDF of 4.88 mgd (1.25 mgd x 3.9).

Table 2 presents a summary of the current and projected flows, with a breakdown of the component flows and peaking factors.

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TABLE 2. CURRENT AND PROJECTED WASTEWATER FLOWS TO THE LEE WWTF

Flow Component	Current Year 2005 (mgd)	Design Year 2027 (mgd)
1) Average daily residential flow	0.36	0.48
2) Average daily commercial flow	0.10	0.20
3) Average daily septage flow	Included in Line #1	0.010
Average Daily Domestic Wastewater [1]	**0.46**	**0.69**
Average Daily Infiltration	0.37	0.56
Average Daily Flow (ADF) [2]	**0.83**[3]	**1.25**
Peaking Factor of ADF to MMF	1.53	1.53
Maximum Monthly Flow (MMF) [4]	**1.27**	**1.90**
Peaking Factor of ADF to PDF	3.06	3.06
Maximum 24 Hour Flow (PDF) [5]	**2.54**	**3.83**
Peaking Factor of ADF to PHF	3.9	3.9
Peak Hourly Flow (PHF) [6]	**3.24**	**4.88**

(1) Sum of components 1 through 3

(2) Average daily wastewater plus average daily infiltration

(3) Observed from flow records between July 2001 and December 2004

(4) Average daily flow multiplied by peaking factor to MMF

(5) Average daily flow multiplied by peaking factor PDF

(6) Average daily flow multiplied by peaking factor to PHF

Appendix A

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Effluent Requirements

Presently, the Town is authorized to discharge treated effluent to the Housatonic River (NPDES Permit No. 0100153). The current permit expires on September 22, 2005. We assume that the same effluent requirements will be enforced throughout construction of the new facility which at this time is proposed to be on line in the fall of 2007. The current NPDES limits are summarized in Table 3.

TABLE 3. CURRENT NPDES PERMIT REQUIREMENTS

Parameter	Existing NPDES Permit Limits Permit No. 0100153
Flow	1.0 mgd Monthly Average[1]
pH	6.3 - 8.3 s.u.
BOD_5	30 mg/l Monthly Average
Total Suspended Solids	30 mg/l Monthly Average
Total Phosphorus[2]	1.0 mg/l
Ammonia[2]	Report
TKN	Report
Total Nitrate	Report
Total Nitrite	Report
Settleable Solids	0.1 ml/l Weekly Average
Chlorine Residual[2]	0.3 mg/l Monthly Average
Fecal Coliform[2]	200 #/100 ml
LC_{50}	100%

Notes: [1]Annual Average flow calculated using the monthly averages
[2]Season limitations spring through fall of each year

It is our understanding that in the fall of 2000, the EPA issued a draft NPDES permit that for the first time contained effluent limits for phosphorus and for a future increase in flow from 1.0 mgd to 1.5 mgd. Since the MEPA review process had not been completed prior to requesting the increase in future flow, the draft permit was withdrawn and the Town's current permit was issued with a flow limit of 1.0 mgd. Although the Fact Sheet that accompanied the 2000 NPDES permit contained no justification, a total phosphorus seasonal (May 1 to October 31) limit of 1.0 mg/l was included in the permit. As part of SEA's planning, it was further assumed that to comply with 40 CFR 122.44 (federal anti-backsliding requirements) and 314 CMR 4.04 (Commonwealth's anti-degradation requirements) the total phosphorus limit would be decreased from 1.0 mg/l to 0.7 mg/l (existing design flow of 1.0 mgd divided by previously proposed permitted design flow of 1.5 multiplied by 1.0 mg/l P). Simply stated, we understand the anti-backsliding/anti-degradation require the mass pollutant loading to remain consistent. That is, a 50-percent increase in flow would require a 50-percent decrease in pollutant concentration (e.g., TSS: 30 mgl x 1.0 mgd/1.25 mgd = 24 mg/l). For this reason, and since we are unaware of documented evidence of eutrophic conditions existing downstream of the discharge, we propose a seasonal total phosphorus limit of 0.8 mg/l (1.0 mgd/1.25 mgd x 1.0 mg/l = 0.8 mg/l). Proposed effluent requirements are shown in Table 4. Please note that the dilution factor will decrease from 27 to 22 (sum of instream 7Q10 of 26 mgd plus design flow of 1.25 mgd divided by the design flow of 1.25 mgd).

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TABLE 4. PROPOSED NPDES PERMIT LIMITS

Parameter	Existing NPDES Permit Limits Permit No. 0100153	Assumed Future NPDES Permit Limits
Flow	1.0 mgd Monthly Average	1.3 mgd Monthly Average
pH	6.3 - 8.3 s.u.	6.3 - 8.3 s.u.
BOD_5	30 mg/l Monthly Average	24 mg/l Monthly Average
Total Suspended Solids	30 mg/l Monthly Average	24 mg/l Monthly Average
Total Phosphorus	1.0 mg/l	0.8 mg/l
Ammonia	Report	Report
TKN	Report	Report
Total Nitrate	Report	Report
Total Nitrite	Report	Report
Settleable Solids	0.1 ml/l Weekly Average	0.1 ml/l Weekly Average
Chlorine Residual	0.3 mg/l Monthly Average	0.23 mg/l Monthly Average
Fecal Coliform	200 #/100 ml	200 #/100 ml
LC_{50}	100%	100%

Nitrification and denitrification are not required under the existing permit. However, it is anticipated with WWTF expansion and future TMDL analysis of the Housatonic River, limitations may be added, further regulating the discharge of nitrogenous compounds and nutrients. NPDES requirements for sludge analysis are included in the newly issued permit. Annual monitoring of the sludge is required. Sampling and analysis procedures are as specified in 40 CFR 503 and an annual report is required as well.

The information provided within this letter will be further documented in the Supplemental PER which will be forwarded to your office during the month of April. Should you have any comments or questions regarding the information presented herein, please feel free to contact me at (781) 224-6003.

Very truly yours,

METCALF & EDDY, INC.

Brian W. Daly

Brian W. Daly
Project Manager

Cc: File
R. Scherpf; C. Schmitt; B. Harrington (M&E)
C. Pompi; R. Nason; Wastewater Oversight Committee (Town of Lee)

Appendix B

Proposed Phosphorus Limit Calculations

Town of Lee, MA
Draft NPDES Renewal - TP Limit Scenario - Alternative No. 1
June 9, 2008

Per MADEP and EPA - Proposed P Limit:

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #	5-year Duration	20-year Duration
April 1 - Oct. 31	7	213	1.5	0.2	534	2,669	10,675
Nov. 1 - March 31	5	152	1.5	1.0	1,897	9,487	37,947
					2,431	**12,156**	**48,622**

Alternate Proposal for P Limit Considering Phased Implementation Down to 0.4 mg/L:

Start of Year 1

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #	Cumulative
April 1 - Oct. 31	7	213	0.85	0.8	1,210	
Nov. 1 - March 31	5	152	0.85	1.0	1,075	
					2,285	

Start of Year 6 12,097

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #
April 1 - Oct. 31	7	213	0.95	0.6	1,014
Nov. 1 - March 31	5	152	0.95	1.0	1,202
					2,216

Start of Year 11 11,662

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #
April 1 - Oct. 31	7	213	1.05	0.4	747
Nov. 1 - March 31	5	152	1.05	1.0	1,328
					2,075

Start of Year 16 10,871

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #
April 1 - Oct. 31	7	213	1.15	0.4	818
Nov. 1 - March 31	5	152	1.15	1.0	1,455
					2,273

Start of Year 21 11,859

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #
April 1 - Oct. 31	7	213	1.25	0.4	890
Nov. 1 - March 31	5	152	1.25	1.0	1,581
					2,471

46,490

Prepared by: Bob Scherpf
Revised by: Kevin Anderson

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Appendix B

Town of Lee, MA
Draft NPDES Renewal - TP Limit Scenario - Alternative No. 2
June 9, 2008

Per MADEP and EPA - Proposed P Limit:

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #	5-year Duration	20-year Duration
April 1 - Oct. 31	7	213	1.5	0.2	534	2,669	10,675
Nov. 1 - March 31	5	152	1.5	1.0	1,897	9,487	37,947
					2,431	**12,156**	**48,622**

Alternate Proposal for P Limit Considering Phased Implementation Down to 0.2 mg/L:

Start of Year 1

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #	Cumulative
April 1 - Oct. 31	7	213	0.85	0.8	1,210	
Nov. 1 - March 31	5	152	0.85	1.0	1,075	
					2,285	

Start of Year 6 12,097

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #
April 1 - Oct. 31	7	213	0.95	0.6	1,014
Nov. 1 - March 31	5	152	0.95	1.0	1,202
					2,216

Start of Year 11 11,662

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #
April 1 - Oct. 31	7	213	1.05	0.4	747
Nov. 1 - March 31	5	152	1.05	1.0	1,328
					2,075

Start of Year 16 10,871

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #
April 1 - Oct. 31	7	213	1.15	0.2	409
Nov. 1 - March 31	5	152	1.15	1.0	1,455
					1,864

Start of Year 21 9,724

Duration	Months	Days	Avg. Daily Flow, mgd	P limit mg/l	Stream Loading, #
April 1 - Oct. 31	7	213	1.25	0.2	445
Nov. 1 - March 31	5	152	1.25	1.0	1,581
					2,026

44,355

Prepared by: Bob Scherpf
Revised by: Kevin Anderson

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6/9/2008 16:22